IN THE CLAIMS:

For the convenience of the examiner, the complete listing of claims is provided below.

1-143. (canceled)

144. (previously presented) A data processing system, comprising:

memory;

a processor; and

a bus interconnecting the memory and the processor, the bus comprising an encoder, parallel data lines, and a decoder, the encoder encoding data sub-words of a data word into corresponding encoded data sub-words of an encoded data word, a first sub-word of the data sub-words being encoded into a second sub-word of the encoded data sub-words using information carried in the data sub-words other than the first sub-word, the parallel data lines interconnecting the encoder and the decoder to transmit the encoded data word from the encoder to the decoder, the decoder decoding the encoded data sub-words into the data sub-words respectively.

145. (previously presented) The data processing system as in claim 144, wherein the bus comprises a north bridge, the bus interconnecting the memory and the processor through the north bridge; and, the parallel data lines transmit the encoded data sub-words between the north bridge and the processor.

146. (previously presented) A data processing system as in claim 144, wherein each of the data sub-words has less data elements than the corresponding encoded data sub-word.

147. (previously presented) A data processing system as in claim 146, wherein the information comprises at least one of:

a data sub-word weight;

at least one data element from the data sub-words other than the first sub-word; and

at least one data element from the data word.

148. (previously presented) A data processing system as in claim 146, wherein the encoder inverts all data elements of the first sub-word in response to a determination based at least in part on the information.

149. (previously presented) A data processing system as in claim 146, wherein the encoder inverts all data elements of a third sub-word encoded from the first sub-word to generate the second sub-word in response to a determination based at least in part on the information.

150. (previously presented) A data processing system as in claim 144, wherein the second sub-word is determined from a plurality of code words based at least in part on the information; and, wherein the plurality of code words are encoded from the first sub-word.

151. (previously presented) A data processing system as in claim 150 wherein the second sub-word is selected from the plurality of code words based at least in part on the information.

152. (previously presented) A data processing system as in claim 144, the encoder sets a logic state of at least one particular data element of the encoded data word such that the number of data elements in each logic state is constant for each encoded data word.

153. (previously presented) A data processing system as in claim 152, wherein the encoder uses in part the information to set the logic state of the at least one particular data element in the encoded data word.

154. (previously presented) A data processing system as in claim 152, wherein the at least one particular element comprises a parity element.

155. (previously presented) A data processing system as in claim 154, wherein the encoder uses in part the information to set a logic state of the parity element.

156. (previously presented) A data processing system as in claim 144, wherein the encoder encodes the data word such that a number of data elements in each logic state in the encoded data word is predetermined.

157. (previously presented) A data processing system as in claim 156, wherein the encoder encodes each data sub-word by associating the data sub-word with an encoded data sub-word in a user defined way.

158. (previously presented) A data processing system as in claim 144, wherein the encoder binomially encodes each of the data sub-words.

159. (previously presented) A data processing system as in claim 144, wherein a total current for driving data elements of the encoded data word on the plurality of data lines in a power rail is substantially constant.

160. (previously presented) A data processing system as in claim 159, wherein each data element of the encoded data word is transmitted through less than two of the plurality of data lines.

161. (previously presented) A data processing system as in claim 159, wherein the power rail is one of:

a) Vdd; and

b) Vss.

162. (previously presented) A data processing system as in claim 159, wherein the encoder sets a logic state of at least one particular data element of the encoded data word, such that the total current for driving data elements of the encoded data word on the plurality of data lines in the power rail is substantially constant.

163. (previously presented) A data processing system as in claim 144, wherein a total current in the plurality of data lines is substantially constant; and wherein each data

element of the encoded data word is transmitted through less than two of the plurality of data lines.

164. (previously presented) A data processing system as in claim 163, wherein the encoder sets a logic state of at least one particular data element of the encoded data word, such that the total current in the plurality of data lines is substantially constant.

165. (previously presented) A data processing system, comprising:

a north bridge;

a plurality of components, comprising: a processor, memory, a graphics component, and a south bridge; and

a plurality of buses connecting the plurality of components to the north bridge, the north bridge and one of the plurality of components having an encode and a decoder, the plurality of buses having a plurality of parallel data lines connecting the encoder and the decoder, the encoder encoding data sub-words of a data word into corresponding encoded data sub-words of an encoded data word for trasmission over the plurality of parallel data lines, the decoder decoding the encoded data sub-words into the data sub-words respectively, a first sub-word of the data sub-words being decoded from a second sub-word of the encoded data sub-words using first information carried in the encoded data sub-words other than the second sub-word.

166. (previously presented) A data processing system as in claim 165, wherein each of the data sub-words has less data elements than the corresponding encoded data sub-word.

167. (previously presented) A data processing system as in claim 166, wherein the second sub-word of the encoded data sub-words is encoded from the first sub-word of the data sub-words using second information carried in the data sub-words other than the first sub-word.

168. (previously presented) A data processing system as in claim 167, wherein the second information comprises at least one of:

a data sub-word weight;

at least one data element from the data sub-words other than the first sub-word; and

at least one data element from the data word.

169. (previously presented) A data processing system as in claim 166, wherein the decoder inverts all data elements of the second sub-word in response to a determination based at least in part on the first information.

170. (previously presented) A data processing system as in claim 166, wherein the decoder inverts all data elements of a third sub-word decoded from the second sub-word to generate the first sub-word in response to a determination based at least in part on the first information.

171. (previously presented) A data processing system as in claim 165, wherein the first sub-word is determined from a plurality of code words based at least in part on the first information; and, wherein the plurality of code words are decoded from the second sub-word.

172. (previously presented) A data processing system as in claim 171, wherein the first sub-word is selected from the plurality of code words based at least in part on the first information.

173. (previously presented) A data processing system as in claim 165, wherein the decoder binomially decodes each of the encoded data sub-words.

174. (previously presented) A data processing system as in claim 165, wherein each data element of the encoded data word is transmitted through less than two of the plurality of data lines; and, wherein the encoded data sub-words are encoded such that at least one of:

a) a number of data elements in each logic state for each encoded data word;

b) a total current for driving data elements of the encoded data word on the plurality of data lines in a power rail; and

c) a total current in the plurality of data lines;

is substantially constant.

175. (previously presented) A data processing system as in claim 174, wherein the encoder sets a logic state of at least one particular data element of the encoded data word to maintain substantially constant at least one of:

a) the number of data elements in each logic state for each encoded data word;

b) the total current for driving data elements of the encoded data word on the plurality of data lines in a power rail; and

c) the total current in the plurality of data lines.

176. (previously presented) A data processing system as in claim 175, wherein the at least one particular element comprises a parity element.